THE UREDINALES (*Rusts*) OF IOWA

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Forty years ago a "preliminary list" of the rusts (Uredinales) of Iowa was published by the writer. It was the first list, and up to the present time is the only list of Iowa rusts to be published. That first list numbered 134 species, as they were then rated, the list now presented numbers 164 species, as they are now understood.

During the interim of forty years, great advance has been made in comprehending the true nature of the rusts and in delimiting the species. There were fifty species in the original list under the genera *Aecidium* and *Rostelia*. By names of cultures and accessory studies all but five of these fifty species have since been associated with telial forms, and consequently the names have been reduced to synonymy. To offset this numerical loss about fifteen species have been added by use of telial names for some of the forms given under *Aecidium* and by separation of forms erroneously grouped under a single name. By such a readjustment of the names the 134 species of the original list become 113 species. Comparing the revised list with the present one gives an increase of 56 species for the interim of forty years. It is probable, of course, that collections exist in the herbaria of the several colleges of the state, in private sets, and possibly elsewhere, that would add materially to this list. But they are unknown to the writer, and are not recorded in the recently completed rust portion of the North American Flora. Considering the area of Iowa and its geographical position between the floras of the great lakes region and the western plains, this increase of about fifty per cent in the forty years is far below what might reasonably be expected.

The list of Iowa rusts here presented is arranged and the nomenclature adopted in conformity with the method to be found in the seventh volume of the *North American Flora*. A few synonyms have been added to help in recognizing the corresponding name in the original Iowa list, or in other common works on the rusts. To conserve space, however, most synonyms are omitted, but may be found for both fungus and host in the North American Flora. The adoption in the present list of the names used in the *North*

American Flora is not due to any strong preference for the nomenclature there employed, but because there is at present no other systematic account of the rusts in which the several stages of each species are fully described, or the multiplicity of names carefully assorted and assigned. By means of the chronologically arranged synonymy in that work it is possible for each person to select such names as he may prefer, using the combination of generic and specific name that to him seems most familiar or suitable, and to do so with nomenclatural accuracy.

In the list of 1884 it was necessary to arrange the species alphabetically, as no comprehensive publication existed at that time which could be followed. In the present list they conform to the order in the *North American Flora,* in which the species of each genus have approximately the same succession as do the host plants in Britton and Brown's *Illustrated Flora.*

The following enumeration is made up from data on packets to be found in the Arthur Herbarium at the Purdue Agricultural Experiment Station in Lafayette, Indiana. After each host is given the locality where collected, the day, month and year of collection, and the name of the collector. When represented also, or only, in published *exsiccati* such data are added in parentheses. Altogether about 1265 specimens of Iowa rusts are to be found in the Arthur Herbarium. The earliest collection was made in 1869, and is credited to the Natural History Society, of which the writer was a member. This Society was organized by some of the College students interested in the various aspects of natural science, under the guidance and inspiration of that able and devoted teacher, Dr. N. S. Townshend. By the close of 1884 the rust collections had increased to some 440 specimens, about three fourths of which were utilized in making up the list given in the Bulletin of the College, published in November of that year.

The inception of the work with Iowa rusts was due to the suggestion of my much revered teacher, Professor C. E. Bessey, who placed the material belonging to the College and in his own herbarium as well as the use of the College laboratory and microscopes at my disposal in November, 1882. The first result of this study was a twenty-seven page article on Descriptions of Iowa Uromyces, published in the Bulletin of the Minnesota Academy of Sciences, in May, 1883. In this work may be found foreshadowed some of the most prominent features that characterize the monographic account of North American Uredinales, which for a score

of years has occupied the attention of the writer, and the last pages of which are now being printed.

The main objects in view in presenting the present list of Iowa Uredinales are twofold: first, to make available for future studies a basic list of well considered and accurate determinations from Iowa material, and second, to put upon record the historical data connected with the systematic development of this subject in Iowa, and in particular to show who contributed the material for study. Among the names most prominent in the earlier years are those of Professor Bessey, then of Ames, Professor Holway, then of Decorah, and somewhat later Professor Geo. W. Carver, now of Tuskegee, Ala., and at that time a student in Ames, while of more recent years should be mentioned the name of Professor Guy West Wilson, now of Fayette. The contribution made by Professor Holway is especially remarkable as it comprises nearly two-fifths of the total number of collections here recorded. Professor Holway (1853-1923) was a collector of unusual ability, and also did much critical study. No one has yet equalled him in the amount and importance of the original material provided for a knowledge of the American rusts.

The names of 62 persons appear as collectors of the specimens here recorded. To save space only the surname is used each time, except in the case of A. O. Thomas and W. S. Kern. As it is obviously important to have the full name, an alphabetical list is here given, and to each name is appended the number of collections credited to each person:

J. P. Anderson 1, T. L. Andrews 1, J. C. Arthur 283, H. H. Babcock 1, E. Bartholomew 14, C. E. Bessey 56, E. P. Bettinga 2, M. Bloom 5, R. E. Buchanan 1, G. D. Butler 2, Geo. W. Carver 47, Alene Chester 1, H. S. Coe 2, R. C. Combs 1, J. J. Davis 1, B. O. Dodge 1, H. C. Eckles 1, C. H. Farr 1, R. I. Cratty 13, Mrs. M. F. L. Fitzpatrick 5, B. D. Halsted 6, Halsted & Fairchild 1, A. S. Hitchcock 21, E. W. D. Holway 493, B. F. Hoyt 2, H. H. Hume 12, H. B. Humphrey 2, Louis Kaufman 1, L. F. Kebler 1, Mrs. Kellogg 1, F. D. Kern 33, W. S. Kern 1, Miss C. M. King 2, A. F. Kovank 4, Miss Lansdale 1, C. D. Learn 12, John Leiberg 1, T. H. MacBride 13, Miss Emma R. McGee 1, G. P. Miller 1, J. H. Mills 1, Natural History Society 1, A. E. Paddock 1, L. H. Pammel 14, Pammel & Kebler 1, Pammel & Rolfs 1, F. J. Piemeisel 1, Miss E. M. Prouty 1, P. H. Rolfs 2, A. F. Sample 1, B. Shimek 6, F. A. Sirrine 1, C. V. Steret 1, F. C. Stewart 2, Miss K. L. Stewart 1, A. O. Thomas 2, W. A. Thomas 13, Thuerliman & Sirrine 1, Miss Irma A. Uhde 4, F. Vasku 1, E. B. Watson 1, Guy West Wilson 142, Percy Wright 1.

In a few cases no specimens have been found in the Arthur Herbarium,

Holway Herbarium, or at the Iowa State College, to substantiate entries in the Preliminary List of 1884. Such *lacunae* are as follows:

1. *Uromyces acuminatus* on *Spartina cynosuroides,* Ames.
9. *Uromyces howei* on *Asclepias cornuti,* Ames.
14. *Uromyces polygoni* on *Polygonum aviculare,* Ames.
20. *Puccinia amorphae* on *Amorpha fruticosa,* Ames.
23. *Puccinia angustata* on *Scirpus atrovirens,* Ames.
23. *Puccinia angustata* on *Cyperus strigosus,* Ames.
28. *Puccinia circaeae* on *Circaea lutetiana,* Ames.
35. *Puccinia emaculata* on *Panicum capillare,* Decorah.
36. *Puccinia flosculosorum* on *Taraxacum officinale,* Decorah.
39. *Puccinia gentianae* on *Gentiana puberula,* Plymouth County.
40. *Puccinia gerardii* on *Aster paniculatus,* Ames.
41. *Puccinia graminis* on *Avena sativa,* Ames.
41. *Puccinia graminis* on *Triticum vulgare,* Ames.
53. *Puccinia proserpinacae* on *Proserpinaca palustris,* Boone.
56. *Puccinia silphii* on *Silphium perfoliatum,* Ames.
57. *Puccinia maydis* on *Zea mays,* Ames.
61. *Puccinia tanaceti* on *Artemisia dracunculoides,* Charles City.
61. *Puccinia tanaceti* on *Helianthus tuberosus,* Ames and Charles City.
61. *Puccinia tanaceti* on *Vernonia fasciculata,* Ames.
66. *Puccinia xanthii* on *Xanthium canadense,* Ames, Decorah.
71. *Phragmidium subcorticium* on *Rosa blanda,* Ames.
77. *Coleosporium sonchi-arvensis* on *Silphium laciniatum,* Ames.
88. *Aecidium berberidis* on *Berberis vulgaris,* Ames.
89. *Aecidium caladii* on *Arisaema triphyllum,* Charles City.
89. *Aecidium caladii* on *Arisaema dracontium,* Manchester.
92. *Aecidium compositarum* on *Silphium perfoliatum,* Decorah.
92. *Aecidium compositarum* on *Solidago latifolia,* Ames.
92. *Aecidium compositarum* on *Helianthus strumosus,* Ames.
96. *Aecidium epilobii* on *Oenothera biennis,* Ames.
102. *Aecidium grossulariae* on *Ribes gracile,* Charles City.
107. *Aecidium impatientatum* on *Impatiens fulva,* Decorah.
107. *Aecidium impatientatum* on *Impatiens pallida,* Ames.
123. *Aecidium punctatum* on *Anemone nemorosa,* Ames.
124. *Aecidium pustulatum* on *Comandra umbellata,* Ames.
125. *Aecidium ranunculacearum* on *Anemone dichotoma,* Decorah.
127. *Aecidium Sambuci* on *Sambucus canadensis,* Ames.

In each instance except four the rust on the host named has been reported since 1884 from the same or other localities in the state. In the case of 53, *Puccinia proserpinacae* on *Proserpinaca palustris,* the species is not common, and if it occurs at all in the state is undoubtedly local and rare. No. 107, *Aecidium impatientatum* on *Impatiens fulva,* and No. 125, *Aecidium ranunculacearum* on *Anemone dichotoma* were doubtless erroneous determinations of the hosts. No. 127 *Aecidium Sambuci* on *Sambucus canadensis* probably occurs occasionally in southeastern Iowa, although the writer can not learn of any specimen preserved in the state, or elsewhere. These four records are omitted from the following list. Nearly a score of collections made by A. S. Hitchcock are without the year of collection. Professor Hitchcock has informed the writer that he was in Ames each summer from

1885 to 1889, living there the first two years, and was also at Iowa City in 1887 to 1889, during which periods the specimens must have been collected.

Coleosporiaceae

1. *COLEOSPORIUM VIBURNI* Arth.
   On *Viburnum Lentago* L.: C.C. (78) 9-14-82 Arth.[1]
2. *COLEOSPORIUM CARNEUM* (Bosc) Jackson.
   On *Vernonia interior* Small: Avoca 9-6-21 (Barth. N. Am. Ured. *2715*) Bartholomew.
3. *COLEOSPORIUM SOLIDAGINIS* (Schw.) Thüm.
   On *Aster cordifolius* L.: A. (77) 10-19-77 Bessey, Fayette 6-5-08 Wilson.
   On *Aster Drummondii Lindl.*: C.C. (77) 9-12-82 Arth.
   On *Aster laevis* L.: Emmet County 8-1-86 Cratty.
   On *Aster lateriflorus* (L.) Britton: Iowa City 8-23-06 Kern.
   On *Aster multiflorus* Ait.: Emmet County 8-1-86 Cratty.
   On *Aster puniceus* L.: Fayette 9-4-09 Wilson.
   On *Aster sagittifolius* Willd.: Cedar Rapids 10-4-93 Shimek.
   On *Aster salicifolius* Lam.: Vinton 1877 Davis; Waverly 8-27-06 Kern.
   On *Callistephus chinensis* Nees: A. (77) 9-11-82 Bessey.
   On *Solidago altissima* L.: A. 1911 King.
   On *Solidago canadensis* L.: A. (77) 10-17-82 Arth.; C.C. (77) 8-19-82 Arth.; S.L. (77) 8-2-83 Arth.; Fayette 7-10-09 Wilson.
   On *Solidago flexicaulis* L.: C.C. 9-21-82 Arth.
   On *Solidago glaberrima* Martens: Emmet County 8-18-86 Cratty.
   On *Solidago nemoralis* L.: A. (77) 10-23-82 Bessey.
   On *Solidago serotina* Ait.: S.L. (77) 8-2-83 Arth.

Uredinaceae

4. *MELAMPSORA MEDUSAE* Thüm.
   On *Populus candicans* Ait.: C.C. (75) 9-20-82 (Ellis, N. Am. Fungi *1075c*) Arth.
   On *Populus deltoides* Marsh.: A. 7-28-74 Bessey; S.L. 12-29-96, 3-31-04 Arth.; Iowa City 9-8-00 Kern; Fayette 7-8-09 Wilson.
   On *Populus occidentalis* (Rydb.) Britton: C.C. (75) 8-21-82, 9-30-82 (Ellis, N. Am. Fungi *1074, 1075b*) Arth.; S.L. 10-28-89 Arth.; Iowa City 10-3-93 Bloom.
5. *MELAMPSORA ABIETIS-CANADENSIS* (Farl.) Ludwig.
   On *Populus Sargentii* Dode;; C.C. (75) 8-31-82 (Ellis N. Am. Fungi *1075b*) Arth.; C.C. (75) 8-30-82 Arth.
6. *MELAMPSORA BIGELOWII* Thüm.
   On *Salix amygdaloides* Anders.: A. (76) 9-9-78 Bessey; S.L. 1-2-97 Arth.; Iowa City 10-3-93 Bloom; Fayette 8-3-09 Wilson; Clermont 8-20-09 Wilson.
7. *MELAMPSORA HUMBOLDTIANA* Speg. (M. americana Arth.).
   On *Salix interior* Rowlee: C. C. (76) 9-15-82 Arth.; Clermont 8-20-09 Wilson.

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[1] The abbreviations used in the following list are A. for Ames, C.C. for Charles City, D. for Decorah, S.L. for Spirit Lake, Arth. for J. C. Arthur, and Holw. for E. W. D. Holway. The numbers in parentheses refer to species in the preliminary list of 1884. The month, day of month, and the last two digits of the year are hyphenated, a cipher being used when the day of month is not recorded.

On *Salix nigra* Marsh.: C.C. 9-11-82 Arth.; Bedford 8-20-19 (Barth. N. Am. Ured. *2622*) Bartholomew.

8. *MELAMPSORA LINI* (Schum.) Desmaz.
On *Linum sulcatum* Ridd.: Emmet County 7-5-86, 8-0-86, 10-4-86 Cratty; S.L. 9-18-91 Arth.; Fayette 6-25-09 Wilson.
On *Linum usitatissimum* L.: Emmet County 8-20-86 Cratty.

9. *PUCCINIASTRUM AGRIMONIAE* (Schw.) Tranz.
On *Agrimonia hirsuta* (Muhl.) Bickn.: A. (80) 6-23-75 Bessey; Iowa City 8-23-06 Kern; Fayette 9-6-09 Wilson.
On *Agrimonia mollis* (T. & G.) Britton: C.C. (80) 8-19-82 Arth.; Fayette 8-30-09 Wilson.

10. *PUCCINIASTRUM AMERICANUM* (Farl.) Arth.
On *Rubus strigosus* Michx.: D. 9-28-84 (Barth. N. Am. Ured. *482*), 10-0-84 Holw.

11. *PUCCINIASTRUM PUSTULATUM* (Pers.) Dietel.
On *Epilobium coloratum* Muhl.: Emmet County 8-1-86 Cratty .

12. *PUCCINIASTRUM PYROLAE* (Pers.) Diet.
On *Pyrola elliptica* Nutt.: Fayette 5-24-09 Wilson.

13. *HYALOPSORA CHEILANTHUS* (Peck) Arth.
On *Cryptogamme Stelleri* (Gmel.) Prantl: D. (83) 8-0-82 Holw.

14. *HYALOPSORA POLYPODII* (DC.) Magn.
On *Filix fragilis* (L.) Underw.: Fayette 7-12-09 Wilson.

15. *MELAMPSOROPSIS PYROLAE* (DC.) Arth.
On *Pyrola elliptica* Nutt.: D. (79) 6-0-83 Holw. Fayette 5-24-09, 6-1-10 Wilson.

16. *UREDINOPSIS OSMUNDAE* Magn.
On *Abies balsamea* (L.) Mill.: Delaware County 1890 MacBride.

17. *CRONARTIUM PYRIFORME* (Peck) Hedgc. & Long (C. Comandrae Peck).
On *Comandra pallida* A. DC.: Emmet County 8-6-86 Cratty; Fayette 10-3-09 Wilson.
On *Comandra umbellata* (L.) Nutt.: D. 8-1-84, 8-30-85 Holw.

18. *CEROTELIUM DICENTRAE* (Trel.) Mains & Anders.
On *Bicuculla Cucullaria* (L.) Millsp.: D. 5-0-86 (Barth. N. Am. Ured. *203*), 5-18-87 (Sydow, Ured. *497*) Holw.; Iowa City 5-7-87 MacBride; Morning Sun 5-16-95 Carver.

AECIDIACEAE

19. *PILEOLARIA TOXICODENDRI* (Berk. & Rav.) Arth.
On *Rhus radicans* L.: A. (19) 9-4-78 W. A. Thomas; D. (19) 1883, 8-14-85 (Barth. N. Am. Ured. *813*) Holw.; S.L. (19) 7-24-83 Arth.; Fayette 7-30-09 Wilson.

20. *TRANZSCHELIA PUNCTATA* (Pers.) Arth.
On *Anemone quinquefolia* L.; D. 5-0-79, 5-31-85 (Barth. N. Am. Ured. *878*) Holw.; Fayette 5-15-08 Wilson.
On *Hepatica acuta* (Pursh) Britton: D. (103) 5-17-83, 5-31-85 (Barth. N. Am. Ured. *1088*), 5-12-89 (Sydow, Ured. *300*) Holw.; Fayette 5-19-08 Wilson.
On *Thalictrum dioicum* L.: D. 7-4-86 Holw.
On *Thalictrum purpurascens* L.: A. 7-0-76 Bessey; D. (129) 5-0-80, 6-12-86 Holw.

On *Padus serotina* (Ehrh.) Ag.: A. (54) 10-0-77 Bessey; D. (54) 9-21-84, 7-0-95 (Sydow, Ured. *1026*) Holw.; Fayette 10-0-07 Wilson.

On *Prunus americana* Marsh.: Fayette 9-6-09 Wilson.

On *Prunus americana lanata* Sudw.; A. 9-0-89 Pammel; D. (54) 8-26-79 Holw.

21. *POLYTHELIS FUSCA* (Pers.) Arth.

On *Anemone quinquefolia* L.: D. (37) 5-0-79, 5-0-85 (Barth. Fungi Columb. *3648*, Barth. N. Am. Ured. *14*) Holw.; Fayette 5-17-09 Wilson.

22. *POLYTHELIS SUFFUSCA* Holw. (P. Pulsatillae Arth.).

On *Pulsatilla hirsutissima* (Pursh) Britton: D. (37) 6-0-83, 5-0-85 Holw.

23. *POLYTHELIS THALICTRI* (Chev.) Arth.

On *Thalictrum dioicum* L.: A. (62) 7-5-77 Arth., 6-20-96 Carver.

24. *UROPYXIS AMORPHAE* (M. A. Curt.) Schroet.

On *Amorpha canescens* Pursh: A. (20) 10-17-82 Bessey; C.C. 8-31-82 Arth.; D. (20) 9-29-84 (Barth. N. Am. Ured *1399*), 8-0-92 (Sydow, Ured. *786*) Holw.; S.L. 9-18-91 Arth.

On *Amorpha fruticosa* Pursh: A. (20) 9-0-92 Carver; C.C. (20) 8-31-82 Arth.; D. (20) 9-0-78 (Ellis, N. Am. Fungi *1036*), 8-15-85, 9-3-85, 9-0-95 (Sydow, Ured. *1034*) Holw.; S.L. (20) 7-24-83, 7-5-99 Arth.; Iowa City 1888 Fitzpatrick; Johnson County 10-21-93 Shimek.

On *Amorpha nana* Nutt.: S.L. (20) 9-0-83 Arth.

25. *PHRAGMIDIUM IMITANS* Arth. (P. gracile Arth.).

On *Rubus strigosus* Michx.: D. (68) 10-0-82, 6-4-83, 5-25-84 (Ellis, N. Am. Fungi *1480*, Barth. N. Am. Ured. *518*), 7-8-84, 9-21-84, 9-12-85, Holw.

26. *PHRAGMIDIUM ROSAE-ARKANSANAE* Dietel.

On *Rosa heliophila* Greene: A. (71) 9-21-94 Stewart, 10-10-94 Combs; D. (71) 9-0-78, 5-0-85 (Barth. N. Am. Ured. *1014*), 9-12-85 (Barth. N. Am. Ured. *914*) Holw.; S.L. (71) 9-0-83 Arth.; Emmet County 8-1-86 Cratty; Fayette 8-21-09 Wilson.

27. *PHRAGMIDIUM AMERICANUM* Dietel.

On *Rosa* sp. (cultivated): Fayette 9-4-09 Wilson.

28. *PHRAGMIDIUM DISCIFLORUM* (Tode) James.

On *Rosa* sp. (cultivated): A. 6-29-96 Carver; West Union 8-15-14 Learn.

29. *PHRAGMIDIUM ANDERSONI* Shear.

On Dasiphora fruticosa (L.) Rydb.: D. 10-4-85 Holw.

30. *PHRAGMIDIUM IVESIAE* Sydow.

On *Potentilla paradoxa* Nutt.: S.L. 11-1-94 (Barth. N. Am. Ured. *916*) Arth.

31. *EARLEA SPECIOSA* (Fries) Arth.

On *Rosa blanda* Ait.: A. (70) 10-3-78 Thomas; C.C. 6-5-82 Arth.; D. 6-0-83 (Rab.-Wint. Fungi Eu. *3707b*) Holw.

On *Rosa heliophila* Greene: C.C. (70) 6-21-82 Arth.; D. (70) 8-0-79, 6-11-83, 9-21-84 Holw.; S.L. 12-29-96, 4-8-02, 3-31-04 Arth.

32. *KUNKELIA NITENS* (Schw.) Arth.

On *Rubus allegheniensis* Porter: C.C. (84) 5-30-82, 6-20-82 Arth.; D. (84) 6-11-83, 6-2-86 (Barth. N. Am. Ured. *211*) Holw.; Fayette 5-3-08 Wilson.

33. *FROMMEA OBTUSA* (Strauss) Arth.

On *Potentilla canadensis* L.: C.C. (69) 9-16-82, 10-7-82 Arth.; D. (69)

9-26-84, 8-7-87 (Barth. N. Am. Ured. *715*), 10-13-89 Holw.; Fayette 5-17-09 Wilson.

34. *KUEHNEOLA UREDINIS* (Link) Arth.
On *Rubus allegheniensis* Porter: D. 10-0-85 Holw.

35. *GYMNOSPORANGIUM CORNICULANS* Kern.
On *Amelanchier canadensis* (L.) Medic.: Fayette 8-30-09 Wilson.

36. *GYMNOSPORANGIUM CLAVARIAEFORME* (Jacq.) DC.
On *Juniperus communis* L.: D. (72) 4-0-82 Holw.

37. *GYMNOSPORANGIUM GLOBOSUM* Farl.
On *Crataegus Margaretta* Ashe: Columbus Junction 9-19-03 Watson.
On *Crataegus McGeeae* Ashe: Farley 10-0-85 McGee.
On *Crataegus mollis* (T. & G.) Scheele: C.C. (133) 8-19-82, 9-27-82 Arth.; Iowa City 8-23-06, 8-15-09, 9-8-09 Kern; Plainfield 8-24-12 Kern.
On *Crataegus pertomentosa* Ashe: Fayette 9-0-07 Wilson; Iowa City 10-3-93 Bloom.
On *Crataegus punctata* Jacq.: C.C. (133) 8-8-82 Arth.; D. 9-0-85 (Barth. Fungi Columb. *4929*, Barth. N. Am. Ured. *1308*), 9-0-89 (Sydow, Ured. *296*) Holw.; Fayette 9-0-07 Wilson; Clermont 8-20-09 Wilson; 8-15-15 Learn.
On *Crataegus rotundifolia* Moench: Clermont 8-21-09 Wilson.

38. *GYMNOSPORANGIUM NIDUS-AVIS* Thaxter.
On *Amelanchier canadensis* (L.) Medic.: Fayette 7-19-09 Wilson.
On *Juniperus virginiana* L.: D. (73) 4-20-82, 5-14-93 (Barth. N. Am. Ured. *910*) Holw.; Fayette 5-22-09, 5-25-09 Wilson.

39. *GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE* Schw.
On *Juniperus virginiana* L.: A. (74) 1878 Bessey, 4-0-05 Buchanan; C.C. (74) 6-6-82 Arth.; D. (74) 4-20-82, 5-14-93 Holw.; Fayette 4-13-08, 5-22-09, 5-24-09 Wilson.
On *Malus coronaria* (L.) Mill.: A. (134) 9-20-82 Bessey, 8-0-87 Kebler, 9-0-89 (Seym. & Earle, Econ. Fungi *227b*) Pammel & Kebler; C.C. 1883? (Ellis, N. Am. Fungi *1086a*) Arth.
On *Malus ioensis* (Wood) Britton: A. 9-0-91 Rolfs, 8-22-97 Carver; C.C. (134) 8-31-82 Arth.; Clermont 8-21-09 Wilson, 8-15-15, 8-17-15 Learn; Fayette 7-30-09 Wilson; Iowa City 8-23-06, 9-22-07, 9-11-09 Kern; Plainfield 9-3-12 Kern.
On *Malus Malus* (L.) Britton: Clermont 8-2-09 Wilson; Plainfield 8-7-22 Kern.

40. *NIGREDO SPARGANII* (C. & P.) Arth.
On *Sparganium eurycarpum* Engelm.: S.L. 9-6-10 Arth.

41. *NIGREDO GRAMINICOLA* (Burr.) Arth.
On *Panicum virgatum* L.: A. 10-0-77 Bessey, 9-13-90 Miller, 10-1-92 Carver, 10-30-98, 2-20-99 Hume, 9-0-01 Pammel; D. 10-1-85 (Arth. & Holw Ured. Exsicc. *19b*) Holw.; S.L. 12-28-96 Arth.

42. *NIGREDO HALSTEDII* (De-Toni) Arth.
On *Homolocenchrus virginicus* (Willd.) Britton: A. 1887 Halsted; D. 9-14-01, 4-0-02 Holw.

43. *NIGREDO POLEMONII* (Peck) Arth.
On *Phlox divaricata* L.: D. 5-31-84 Holw.
On *Phlox paniculata* L.: Fayette 6-25-09 Wilson.
On *Phlox pilosa* L.: Armstrong 5-22-86 Cratty.
On *Polemonium reptans* L.: D. (120) 5-0-79, 6-0-82 (Rab.-Wint. Fungi

Eur. *3637*, Ellis, N. Am. Fungi *1008*), 6-1-85 (Barth. N. Am. Ured. *597*) Holw.; Fayette 5-24-09 Wilson.

On *Steironema ciliatum* (L.) Raf.: A. 5-22-80 Bessey, 6-0-86 Hitchcock.

On *Spartina Michauxiana* Hitchc.: A. (1) 9-0-90 Pammel, 8-22-92 Carver, 4-7-99 Hume; D. (1) 11-12-82, 9-0-83 (Rab.-Wint. Fungi Eur. *3623*, Ellis, N. Am. Fungi *1443*), 9-21-84, 10-13-85 (Sydow, Ured. *251*) Holw.; S.L. (1) 12-0-82, 12-0-83, 8-5-98, 4-10-02, 8-9-07, 11-16-07, 3-31-04, 11-29-09, 12-2-09 Arth.; Donnan Junction 8-20-09 Wilson; Emmet County 7-13-86, 8-25-86 Cratty; Fayette 5-24-09 Wilson; Ft. Dodge (1) 9-3-82 Arth.

44. *NIGREDO SPOROBOLI* (Ellis & Ev.) Arth.

On *Sporobolus neglectus* Nash: A. 9-11-73 Arth.; S.L. 12-24-88, 11-15-92 Arth.

45. *NIGREDO SCIRPI* (Cast.) Arth.

On *Cicuta maculata* L.: D. (118) 1879 Holw.

On *Scirpus fluviatilis* (Torr.) A. Gray: A. 9-29-02 Carver; D. 9-21-84 Holw.; S.L. 8-10-98, 8-6-07, 3-24-08, 9-29-11 Arth.; Garner 11-9-83 Holw.

46. *NIGREDO ELEOCHARIDIS* Arth.

On *Eleocharis palustris* (L.) R. & S.: S.L. 4-7-02 Arth.; Emmet County 7-17-86 (Barth. N. Am. Ured. *985*), 8-0-86 Cratty.

47. *NIGREDO MINUTA* (Dietel) Arth.

On *Carex pubescens* Muhl.: D. 8-28-87 (Barth. N. Am. Ured *893*), 9-18-95 (Sydow, Ured. *1003*) Holw.

48. *NIGREDO PERIGYNIUS* (Halst.) Arth.

On *Carex intumescens* Rudge: A. 9-0-89 (Ellis & Ev. N. Am. Fungi *2228*, Barth. N. Am. Ured. *1094*) Halsted.

On *Rudbeckia laciniata* L.: D. (92) 5-0-86 (Barth. N. Am. Ured. *701*), 5-22-87 (Sydow, Ured. *97*) Holw.; Fayette 6-1-09 Wilson.

49. *NIGREDO CALADII* (Schw.) Arth.

On *Arisaema triphyllum* (L.) Schott: D. (4) 7-0-79, 6-25-83, 5-31-85 (Barth. N. Am. Ured. *882*), 8-15-85 (Barth. N. Am. Ured. *1090*), 8-14-92 (Sydow, Ured. *752*) Holw.; Manchester (89) 5-30-80 Hoyt; Fayette 5-18-08 Wilson.

On *Muricauda Dracontium* (L.) Small: A. (89) 5-30-81 Bessey, 6-0-90, Pammel, 6-20-92, 6-10-96 Carver; Spillville 7-25-99 (Barth. N. Am. Ured. *1586*), 6-18-02 (Barth. N. Am. Ured. *1587*), 6-23-02 Kovank; Fayette 6-4-09 Wilson.

50. *NIGREDO PYRIFORMIS* (Cooke) Arth.

On *Acorus Calamus* L.: D. (16) 1882, 9-21-84 (Barth. N. Am. Ured. 699) Holw.; Fayette 10-3-09 Wilson.

51. *NIGREDO JUNCI* (Desmaz.) Arth.

On *Helianthus occidentalis* Riddell: D. 6-25-88 (Barth. N. Am. Ured. *1050*), 6-27-99 (Sydow, Ured. *1394*) Holw.

52. *NIGREDO SILPHII* (Sydow) Arth.

On *Juncus interior* Wiegand: A. (11) 9-7-78 Bessey.

On *Juncus tenuis* Willd.: A. (11) 9-7-78 Bessey; D. 8-12-86 (Barth. N. Am. Ured. *997*) Holw.; Jackson, 8-12-86 (Seym. & Earle, Econ. Fungi *52*) Holw.; S.L. 8-10-98 Arth.; Iowa City 8-23-06 Kern; Fayette 8-3-09 Wilson.

On *Silphium laciniatum* L.: A. (92) 6-22-72 Arth; S.L. 8-12-13 Arth.; West Okoboji Lake 7-5-12 Miss Stewart; Fayette 7-8-09 Wilson.

On *Silphium perfoliatum* L.: A. (92) 6-10-79 Thomas.

53. *NIGREDO LILII* (G. W. Clint.) Arth.

On *Lilium superbum* L.: D. (5) 6-0-83, 7-13-84 Holw.

54. *NIGREDO POLYGONI* (Pers.) Arth.

On *Polygonum aviculare* L.: A. (14) 1891? Rolfs, 6-20-96 Carver; D. 12-5-86 (Barth. N. Am. Ured. *1095*) Holw.; Emmet County 7-17-86 Cratty.

On *Polygonum erectum* L.: A. 10-1-92 Carver; C.C. (14) 8-29-82, 9-6-82, 9-26-82 Arth.; D. 8-22-86 (Barth. N. Am. Ured. *991*) Holw.; Des Moines 9-15-95 Carver; Iowa City 10-7-93 Macbride.

On *Polygonum ramosissimum* Michx.: S.L. 12-29-96, 6-19-00 Arth.; Emmet County 7-17-86, 8-0-86 Cratty; Jewell Junction 6-29-86 Hitchcock.

55. *NIGREDO CARYOPHYLLINA* (Schrank) Arth.

On *Dianthus Caryophyllus* L.: A. 7-5-96 Carver; D. 11-3-95 (Barth. N. Am. Ured. *1588*) Holw.; Monticello 5-12-09 Wilson.

56. *NIGREDO SILENES* (Schlecht.) Arth.

On *Silene nivea* (Nutt.) Otth: Iowa City 5-22-89 Hitchcock.

57. *NIGREDO LESPEDEZAE-PROCUMBENTIS* (Schw.) Arth.

On *Lespedeza capitata* Michx.: A. (12) 8-14-76 Bessey; C.C. (12) 8-31-82 Arth.; D. (12) 9-30-83, 10-11-84, 6-9-88 (Sydow, Ured. *306*) Holw.; Emmet County (12) 8-25-82 Cratty; Fayette 9-4-09 Wilson.

On *Lespedeza leptostachya* Engelm.: A. (12) 4-3-72 Bessey; D. (12) 9-18-84 (Barth. N. Am. Ured. *982*) Holw.; Lyons County (12) 1882 Leiberg; Ft. Dodge (12) 9-8-82 Arth.; Conover 8-15-84 Holw.

58. *NIGREDO HEDYSARI-PANICULATI* (Schw.) Arth.

On *Meibomia Dillenii* (Darl.) Kuntze: D. (8) 8-10-84 Holw.

On *Meibomia sessilifolia* (Torr.) Kuntze; D. 9-9-85 Holw.

59. *NIGREDO FABAE* (Pers.) Arth.

On *Lathyrus myrtifolius* Muhl.: Chickasaw County 8-13-84 Holw.

On *Lathyrus venosus* Muhl.: D. (15) 6-0-83, 8-15-81, 8-1-85 (Barth. N. Am. Ured. *788*), 7-20-99 (Sydow, Ured. *1353*) Holw.; S.L. (15) 1883 Arth.; Mason City (15) 10-0-83 Holw.; Fayette 8-3-09 Wilson; Emmet County 8-11-86 Cratty.

On *Vicia americana* Muhl.: A. (15) 10-26-82 Bessey; D. 10-0-85, 10-15-85, 9-0-88 Holw.; S.L. 7-12-99 Arth.; Fayette 7-30-09 Wilson.

60. *NIGREDO FALLENS* (Desmaz.) Kern.

On *Trifolium pratense* L.: A. 9-0-92 Bettinga, 9-11-92, 1894 Carver, 9-18-94 Chester, 10-0-01 Paddock, 9-11-09 Pammel; D. 9-27-91, 10-4-91 (Barth. N. Am. Ured. *1590*) Holw.; S.L. 9-18-91 Arth.; Iowa City 7-31-05, 8-13-06 Kern.

61. *NIGREDO TRIFOLII* (Hedw. f.) Arth.

On *Trifolium repens* L.: A. 6-10-86 Hitchcock; D. (2, 114) 6-0-83, 6-0-86 (Barth. N. Am. Ured. *500*) Holw.; Fayette 7-8-09 Wilson; Clermont 8-17-15 Learn.

62. *NIGREDO MEDICAGINIS* (Pass.) Arth.

On *Medicago sativa* L.: A. 9-24-10, 10-24-10 Coe.

63. *NIGREDO APPENDICULATA* (Pers.) Arth.

On *Phaseolus vulgaris* L.: Grinnell 9-20-08 Kellogg.

On *Strophostyles helvola* (L.) Britton: A. (13) 8-0-78 Bessey, 6-8-96 Carver; D. 7-0-87 Holw.; Mt. Pleasant 1897 Mills.

64. *NIGREDO PROËMINENS* (DC.) Arth.

On *Chamaesyce glyptosperma* (Engelm.) Small: C.C. (6) 1882 Arth.; S.L. 6-30-84, 8-14-98 Arth.

On *Chamaesyce humistrata* (Engelm.) Small: A. 9-12-92 Carver, 6-18-? Hitchcock, 9-11-09 Pammel; Iowa City 8-23-06, 7-8-14 Kern; Fayette 9-0-07 Wilson.

On *Chamaesyce maculata* (L.) Small: A. (6, 98) 1871 Arth., 6-23-86 Hitchcock, 7-0-92 Bettinga; D. (6) 9-12-78, 8-29-86 Holw.; Boone 9-0-90 Pammel; Fayette 9-0-07 Wilson.

On *Chamaesyce Preslii* (Guss.) Arth.: A. (6) 8-7-75 Bessey, 6-18-? Hitchcock, 9-27-92, 7-2-06 Carver, 8-27-99 Hume; Jefferson 7-3-95 Pammel.

On *Chamaesyce serpyllifolia* (Pers.) Small: Sioux City 8-30-95 Pammel.

On *Dichrophyllum marginatum* (Pursh) Kl. & Garcke: A. (7) 10-18-77 Bessey, 8-29-95 Pammel.

On *Poinsettia dentata* (Michx.) Small: Woodbury County 7-0-88 Hitchcock.

On *Poinsettia heterophylla* (L.) Kl. & Garcke: C.C. (6) 9-0-82 Arth.; D. (6, 98) 10-0-79 Holw.; Sioux City 9-3-21 (Barth. N. Am. Ured. *2797*) Bartholomew.

65. *NIGREDO HYPERICI-FRONDOSI* (Schw.) Arth.

On *Hypericum Ascyron* L.: A. (10) 1879 Bessey; D. (10, 106) 7-12-79, 7-31-79, 8-1-79, 9-21-84 (Barth. N. Am. Ured. *291, 390*), 9-3-85 Holw.

66. *NIGREDO PLUMBARIA* (Peck) Arth.

On *Oenothera biennis* L.: D. (96) 6-0-82, 6-0-83 Holw.; S.L. (96) 7-2-84 Arth.; Emmet County 6-6-86 Cratty.

67. *NIGREDO GENTIANAE* Arth.

On *Amarella occidentalis* (A. Gray) Greene: D. (39) 9-26-84 (Barth. N. Am. Ured. *385*) Holw.

68. *NIGREDO (?) HOWEI* (Peck) Arth.

On *Asclepias incarnata* L.: D. (9) 9-0-79, 9-12-85, 9-12-88 (Sydow, Ured. *255*) Holw.

On *Asclepias syriaca* L.: A. (9) 10-14-98 Eckles; D. (9) 9-0-80, 9-19-84, 9-22-88 Holw.; Fayette 9-6-09 Wilson.

On *Asclepias tuberosa* L.: D. (9) 9-19-84 Holw.

69. *DICAEOMA SORGHI* (Schw.) Kuntze.

On *Xanthoxalis stricta* (L.) Small: A. (115) 6-15-77 Arth.

On *Zea Mays* L.: A. (57) 7-20-89 Pammel, 9-11-92 Carver, 9-21-98 Sample; C.C. (57) 9-16-82 Arth.; D. (57) 9-0-81, 9-28-84 (Arth. & Holw. Ured. Exsicc. *32a*), 8-14-87 (Arth. & Holw. Ured. Exsicc. *32b*) Holw.; Fayette 8-3-09 Wilson; Clermont 8-30-15 Learn; Avoca 9-6-21 (Barth. N. Am. Ured. *2680*) Bartholomew.

70. *DICAEOMA MARIAE-WILSONI* (Peck) A. & Fr. (Puccinia Ellisiana Thüm.).

On *Andropogon furcatus* Muhl.: D. 9-0-79 Holw.; S.L. 8-6-98, 8-9-98 Arth.

On *Andropogon scoparius* Michx.: A. (21) 10-22-82 Arth.; 9-17-92 Carver; D. (21) 11-0-82, 9-15-85 (Arth. & Holw. Ured. Exsicc. *38b*) Holw.; S.L. (21) 3-4-84 Arth.

On *Viola palmata* L.: A. (131) 5-16-? Hitchcock.

On *Viola papilionacea* Pursh: D. (131) 5-0-79 Holw.; Johnson County 5-12-94 MacBride.

On *Viola pedata* L.: A. (131) 5-24-79 Thomas.

On *Viola pedatifida* G. Don: A. (131) 6-7-75 Bessey, 5-15-? Hitchcock; D. (131) 6-4-83 Holw.

71. *DICAEOMA ANDROPOGONIS* (Schw.) Kuntze.

On *Andropogon furcatus* Muhl.: C.C. (21) 9-16-82 Arth.; D. (21) 9-28-84 (Arth. & Holw. Ured. Exsicc. *39i*), 9-16-88 (Sydow, Ured. *57*), 8-15-98 (Arth. & Holw. Ured. Exsicc. *39g*), 7-10-03 Holw.; S.L. 2-17-84, 8-9-98 Arth.; Emmet County 8-1-86 Cratty; Sibley 8-19-98 Arth.; Fayette 5-23-08, 7-8-09 Wilson; Avoca 9-7-21 (Barth. N. Am. Ured. *2531*) Bartholomew.

On *Andropogon scoparius* Michx.: A. (21) 10-22-82 Arth.; S.L. 8-15-98, 4-10-02 Arth.

On *Castilleja coccinea* (L.) Spreng: D. (90) 5-28-84 Holw.

On *Castilleja sessiliflora* Pursh: A. (90) 5-24-79 Thomas.

On *Comandra pallida* A. DC.: S.L. 6-12-00 Arth.; Fayette 6-4-09 Wilson.

On *Comandra umbellata* (L.) Nutt.: A. (124) 5-24-86 Hitchcock; D. (124) 6-0-83 (Rab.-Wint. Fungi Eur. *3320*), 6-1-85 (Barth. N. Am. Ured. *964*), 6-0-93 (Carleton, Ured. Am. *46*, Sydow, Ured. *850*) Holw.; Iowa City 5-27-86 MacBride; Fayette 5-23-08, 6-4-09 Wilson.

On *Pentstemon gracilis* Nutt.; Granite 6-18-97 Shimek.

On *Pentstemon grandiflorus* Nutt.; Granite 6-18-97 Shimek.

72. *DICAEOMA EMACULATUM* (Schw.) Kuntze.

On *Panicum capillare* L.; A. (35) 9-0-92 Carver; D. 8-20-98 (Arth. & Holw. Ured. Exsicc. *23d*) Holw.; Fayette 3-17-08, 7-30-09 Wilson; Clermont 8-31-15 Learn.

73. *DICAEOMA PAMMELII* (Trel.) Arth.

On *Panicum virgatum* L.: A. (58, not Sporobolus) 11-19-82 Arth., 1892 Wright; D. 8-28-87 (Arth. & Holw. Ured. Exsicc. *20b*), 8-0-96, 8-1-98 (Arth. & Holw. Ured. Exsicc. *20c*) Holw.; S.L. (58, not Sporobolus) 3-7-84, 12-30-96 Arth.; Avoca 9-6-21 (Barth. N. Am. Ured. *2556*) Bartholomew.

On *Tithymalopsis corollata* (L.) Kl. & Garcke: Iowa City 7-0-89 Fitzpatrick.

74. *DICAEOMA POCULIFORME* (Jacq.) Kuntze.

On *Agropyron repens* (L.) Beauv.: Fayette 7-24-09, 3-12-10 Wilson.

On *Agropyron tenerum* Vasey: S.L. 4-4-04 Arth.; Milford 7-31-02 Arth.

On *Agrostis alba* L.: D. (41) 11-5-82, 9-6-85 (Arth. & Holw. Ured. Exsicc. *30h*) Holw.; Ruthven 8-2-98 Arth.; Iowa City 8-13-06 Kern; Fayette 8-30-09 Wilson.

On *Agrostis hyemalis* (Walt.) B.S.P.: S.L. (41) 3-0-84 Arth.

On *Avena fatua* L.: A. 7-12-96 Carver; D. 7-30-98 (Arth. & Holw. Ured. Exsicc. *30g*) Holw.

On *Avena sativa* L.: A. 8-6-13 Anderson; C.C. 8-18-82 Arth.; S.L. (41) 1-0-84, 8-3-98 Arth.; Emmet County 8-16-86 Cratty; Iowa City 8-13-06 Kern; Reinbeck 12-22-04 W. S. Kern; 2-10-05 Kaufman.

On *Berberis vulgaris* L.: C.C. (88) 6-0-82 Arth.; D. (88) 1881, 6-0-92 (Arth. & Holw. Ured. Exsicc. *30r*) Holw.; Chickasaw County (88) 7-0-76 Lansdale.

On *Bromus secalinus* L.: D. 9-12-86 Holw.

On *Dactylis glomerata* L.: A. 6-27-16 Humphrey; D. 10-4-91 (Arth. & Holw. Ured. Exsicc. *30j*) Holw.

On *Echinochloa Crus-galli* (L.) Beauv.: Nordress 9-17-98 Kovank.

On *Elymus canadensis* L.: D. 8-0-86 Holw.; S.L. (41) 1-25-84, 1-2-97, 3-31-04 Arth.

On *Festuca elatior* L.: Udell 6-29-16 Piemeisel.

On *Hordeum jubatum* L.: D. 8-7-98, 8-14-98 (Arth. & Holw. Ured. Exsicc. *30m*) Holw.; S.L. 12-29-96 (Arth. & Holw. Ured. Exsicc. *30k*), 9-29-11 Arth.; Sibley 8-26-98 Arth.

On *Hordeum vulgare* L.: A. 7-7-96 Carver.

On *Muhlenbergia cuspidata* (Torr.) Nash: S.L. 3-0-84 Arth.

On *Muhlenbergia mexicana* (L.) Trin.: A. (41) 10-28-82, 11-17-82 Arth.

On *Phleum pratense* L.: S.L. 10-4-11 Arth.; Lake Okoboji 7-0-10 Uhde; Clermont 8-8-15 Learn.

On *Triticum aestivum* L.: A. (41) 8-0-89 (Seym. & Earle, Econ. Fungi *93*) Thuerlimann & Sirrine; D. 8-6-86 (Arth. & Holw. Ured. Exsicc. *30a*) Holw.

On *Triticum polonicum* L.: A. 6-3-95 Carver.

75. *DICAEOMA MAJANTHAE* (Schum.) Arth.

On *Iris versicolor* L.: D. (108) 6-16-82 (Ellis, N. Am. Fungi *1014*), 6-0-83 (Rab.-Wint. Fungi Eur. *2927*) Holw.

On *Phalaris arundinacea* L.: D. (30) 11-5-82, 9-22-83, 9-0-84 (Ellis, N. Am. Fungi *1475*) Holw.

On *Polygonatum commutatum* (R. & S.) Dietr.: A. (93) 1869, Nat. Hist. Society; D. (93), date ? (Rab.-Wint. Fungi Eur. *3026*), 6-0-79, 5-0-85 (Arth. & Holw. Ured. Exsicc. *44a*) Holw.

On *Polygonatum biflorum* (Walt.) Ell.: D. date ? (Ellis N. Am. Fungi *229*), 6-0-78 (Ellis, N. Am. Fungi *1421*) Holw.: Fayette 6-1-08 Wilson.

On *Uvularia grandiflora* Smith: A. (93) 6-6-77 Arth.; Iowa City 1889 Fitzpatrick.

On *Vagnera racemosa* (L.) Morong: D. 6-0-85 Holw.

76. *DICAEOMA STIPAE* (Arth.) Kuntze.

On *Aster multiflorus* Ait.: S.L. 5-9-03 Arth.

On *Stipa spartea* Trin.: A. (60) 10-25-82 Bessey, 9-0-87 (E. & E. N. Am. Fungi *2245*) Halsted, 3-20-99 Carver, 3-20-99 Hume; D. 11-0-82, 10-0-90 (Arth. & Holw. Ured. Exsicc. *27a*) Holw.; S.L. 12-28-96 (Arth. & Holw. Ured. Exsicc. *27b*), 12-0-97 (Barth. Fungi Columb. *3466*, Barth. N. Am. Ured. *61*), 8-4-98, 8-10-98 (Arth. & Holw. Ured. Exsicc. *27c*), 7-7-99, 4-8-02, 5-9-03, 3-31-04, 11-29-09 Arth.

77. *DICAEOMA SPOROBOLI* (Arth.) Kuntze.

On *Sporobolus heterolepis* A. Gray: D. (58) 9-18-84, 9-28-84 (Arth. & Holw. Ured. Exsicc. *25a*), 9-22-01, 4-0-02 Holw.

78. *DICAEOMA VERBENICOLA* (E. & K.) Arth.

On *Sporobolus asper* (Michx.) Kunth: S.L. 4-8-02 Arth.; Clermont 4-15-10 Wilson.

79. *DICAEOMA HIBISCIATUM* (Schw.) Arth.

On *Muhlenbergia cuspidata* (Torr.) Rydb.: S.L. (64) 3-0-84 Arth.

On *Muhlenbergia mexicana* (L.) Trin.: D. (41) 11-0-82, date ? (E. & E. N. Am. Fungi *1854*), 9-1-84 (Arth. & Holw. Ured. Exsicc. *50b*) Holw.

On *Muhlenbergia Schreberi* Gmel.: Fayette 7-22-09 Wilson.

On *Napaea dioica* L.: D. (112) 6-0-82 Holw.

80. *DICAEOMA RHAMNI* (Pers.) Kuntze.

On Avena sativa L.: A. (30) 11-18-82 Bessey, 7-0-96 Carver; D. (30) 7-26-84, 8-22-85 (Arth. & Holw. Ured. Exsicc. *31a*) Holw.; S.L. (30) 1-15-84, 8-3-98 Arth.; Winneshiek County 8-1-84 Holw.; Fayette 7-30-09 10-3-09 Wilson.

On *Beckmannia erucaeformis* (L.) Host: S.L. 8-6-07 Arth.

On *Calamagrostis canadensis* (Michx.) Beauv.: A. 7-0-97 Carver; Freeport 10-6-01 Holw.

On *Cinna arundinacea* L.: A. (30) 10-12-78 Bessey.

On *Rhamnus alnifolia* L'Her.: D. (94) 6-30-83, 6-0-85 (E. & E. N. Am. Fungi *1821*) Holw.

On *Rhamnus cathartica* L.: Parkersburg 6-0-94 Steret.

On *Rhamnus lanceolata* Pursh: Boone County (94) 5-30-74 Bessey.

81. *DICAEOMA PERICLYMENI* (Schum.) Arth. & Fromme.

On *Lonicera flava* Sims: D. date ? (Ellis, N. Am. Fungi *1020*) Holw.

82. *DICAEOMA FRAXINI* (Schw.) Kuntze.

On *Fraxinum americana* L.: Iowa City 6-0-89 Fitzpatrick.

On *Fraxinus pennsylvanica* Lam.: A. (99) 5-29-71, 6-15-71 Arth., 6-17-99 Hume; S.L. (99) 7-24-83, 7-7-99, 6-10-00, 6-16-01, 8-6-13 Arth.; Lake Okoboji 1910 Uhde.

On *Spartina Michauxiana* Hitchc.; A. (25) 10-22-82, 9-24-83, 8-6-13 Arth., 10-11-92 Carver, 8-1-99, 8-10-99 (Arth. & Holw. Ured. Exsicc. *54k*), 8-21-99 (Arth. & Holw. Ured. Exsicc. *54g*) Hume; C.C. (25) 8-0-82 Arth.; D. (25) 11-12-82, 10-11-85 (Arth. & Holw. Ured. Exsicc. *54j*), 10-23-85, 10-13-88 (Sydow, Ured. *262*) Holw.; Ft. Dodge (25) Date ? Arth.; Fayette 9-10-09 Wilson; Avoca 9-7-21 (Barth. N. Am. Ured. *2755*) Bartholomew.

83. *DICAEOMA DISTICHLIDIS* (Ellis & Ev.) Kuntze.

On *Spartina Michauxiana* Hitchc.: S.L. 8-11-98 Arth.; Emmet County 8-20-86 Cratty.

84. *DICAEOMA CEPHALANTHI* (Seym.) Jackson.

On *Spartina Michauxiana* Hitchc.: A. date ? Pammel.

85. *DICAEOMA VEXANS* (Farl.) Kuntze.

On *Bouteloua curtipendula* (Michx.) Torr.: A. (3) 12-29-90 (Seym. & Earle, Econ. Fungi *532b*) Pammel, 10-10-95 Carver; D. (3, 64) date ? (Ellis, N. Am. Fungi *1051*), 10-13-85 (Arth. & Holw. Ured. Exsicc. *58e*), 9-13-96 (Arth. & Holw. Ured. Exsicc. *58c*) Holw.; S.L. (3, 64) 3-4-84, 3-7-84 Arth.

86. *DICAEOMA JAMESIANA* (Peck) Arth.

On *Asclepias syriaca* L.: D. (109) 6-26-81, 6-28-86 Holw.

On *Asclepias tuberosa* L.: D. (109) 6-0-81 (Ellis, N. Am. Fungi *1012*) Holw.

On *Bouteloua curtipendula* (Michx.) Torr.: S.L. 8-14-98 Arth.; central Iowa 8-0-72 Babcock.

87. *DICAEOMA RUBELLUM* (Pers.) Arth. & Fromme.

On *Phragmites Phragmites* (L.) Karst.: Mason City (49) 10-0-84 Holw.

88. *DICAEOMA MAGNUSIANUM* (Körn.) Kuntze.

On *Anemone canadensis* L.: S.L. 6-14-00 Arth.

On *Phragmites Phragmites* (L.) Karst.: A. date ? (E. & E. N. Am.

Fungi *2238*) Halsted & Fairchild, 9-17-92 Carver; D. 10-1-85 (Sydow, Ured. *274*), 10-2-85 Holw.; S.L. (49) 12-10-83, 8-12-98, 7-9-99 Arth.; Armstrong 5-16-99 Cratty.

89. *DICAEOMA EATONIAE* Arth.

On *Ranunculus abortivus* L.: A. (126) 4-24-78 Bessey; D. 5-0-79, 6-0-82 (Ellis, N. Am. Fungi *1003b*); Johnson County 5-5-94 MacBride; Fayette 5-13-08 Wilson.

On *Sphenopholis obtusata* (Michx.) Scribn.: A. 6-0-90 (Seym. & Earle, Econ. Fungi *94*) Sirrine, 7-2-96 Carver.

On *Sphenopholis pallens* (Spreng.) Scribn.: A. 7-2-96 Carver; D. 5-21-03 Holw.; Ruthven 8-1-98 Arth.

90. *DICAEOMA EPIPHYLLUM* (L.) Kuntze.

On *Poa pratensis* L.: A. (3) 10-25-82 Bessey, (81) 10-22-82, 10-31-82 Arth.; S.L. 8-9-98, 12-3-09 Arth.; Calmar 7-30-98 Arth.; Ruthven 8-1-98 Arth.; Fayette 6-13-08 Wilson; Iowa City 8-13-06 Kern.

91. *DICAEOMA MONTANENSE* (Ellis) Kuntze.

On *Agropyron tenerum* Vasey: A. 6-30-96 Carver.

On *Elymus canadensis* L.: D. 8-7-98 Holw.; S.L. 12-29-96, 8-15-98 Arth.; Clermont 8-20-09 Wilson; Centerville 6-29-16 Humphrey.

On *Elymus striatus* Willd.: D. 8-12-98 Holw.

On *Hystrix Hystrix* (L.) Millsp.: D. 8-12-98, 7-16-99, 8-9-99 (Barth. N. Am. Ured. *328*) Holw.

92. *DICAEOMA ASPERIFOLII* (Pers.) Kuntze.

On *Secale cereale* L.: A. 6-22-96 Carver; D. 6-5-99 Holw.

93. *DICAEOMA APOCRYPTUM* (Ellis & Tracy) Kuntze.

On *Hydrophyllum virginianum* L.: A. (105) 5-15-79 Thomas; Iowa City 5-0-86 MacBride.

On *Nyctelea Nyctelea* (L.) Britton: D. (105) 6-0-79, 6-2-88, 6-12-88 (Barth. N. Am. Ured. *705*) Holw.; Fayette 6-4-09 Wilson.

94. *DICAEOMA CLEMATIDIS* (DC.) Arth.

On *Actaea alba* (L.) Mill.: D. (85) 1881 Holw.; C.C. (85) 6-7-82 Arth.

On *Agropyron tenerum* Vasey: S.L. 8-12-13 Arth.

On *Anemone cylindrica* A. Gray: D. 6-2-01 Holw.

On *Anemone quinquefolia* L.: D. (125) 5-25-79, 6-0-82 (Ellis, N. Am. Fungi *1003a*), 6-9-88 (Barth. N. Am. Ured. *1003*) Holw.

On *Anemone virginiana* L.: D. (125) 5-0-79, 6-0-84 Holw.

On *Bromus purgans* L.: D. 7-4-03 (Barth. N. Am. Ured. *870*), 7-10-03 (Barth. N. Am. Ured. *871*), 8-9-03, 4-11-04 Holw.

On *Clematis virginiana* L.: D. (91) date ? (Ellis, N. Am. Fungi *1005*), 5-0-83 (Rab.-Wint. Fungi Eur. *3421c*), 7-4-03 Holw.

On *Elymus canadensis* L.: D. 8-9-78, 8-6-85, 7-19-03 Holw., S.L. (55) 8-11-98 Arth.; Milford 7-31-02 Arth.

On *Elymus virginicus* L.: 7-3-99 (Sydow, Ured. *1380*) Holw.

On *Hordeum jubatum* L.: S.L. 8-8-98, 7-20-06, 9-5-10, 10-4-11, 8-9-13, 8-20-14 Arth.; Sibley 8-26-98 Arth.; Iowa City 8-13-06 Kern.

On *Isopyrum biternatum* (Raf.) T. & G.: D. (125) 6-4-83 (Barth. N. Am. Ured. *707*), 6-4-85, 5-0-86 (Rab.-Wint. Fungi Eu. *3836*) Holw.

On *Panicularia grandis* (S. Wats.) Nash: S.L. (55, not Elymus canadensis) 1-5-84, 1-25-84, 3-7-84, 10-20-94, 12-28-96, 8-3-98, 7-11-99, 4-10-02, 11-18-07, 9-29-11, 11-11-15 Arth.

On *Thalictrum purpurascens* L.: D. (129) 6-0-82 (Ellis, N. Am. Fungi *1423*) Holw.

On *Triticum aestivum* L.: A. (55) 7-0-80, Bessey; D. (55) 7-0-79 Holw.; S.L. 7-8-99, 7-16-99, 8-6-13 Arth.; Iowa City 8-31-06 Kern.

95. *DICAEOMA IMPATIENTIS* (Schw.) Arth.

On *Elymus canadensis* L.: S.L. 4-8-02 Arth.; Milford 7-31-02 Arth.

On *Impatiens pallida* Nutt.: A. (107) 5-27-? Hitchcock; D. (107) 6-0-80, 6-0-83 (Rab.-Wint. Fungi Eur. *3518*), 6-28-86 (Barth. N. Am. Ured. *852*) Holw.; S.L. (107) 7-24-83, 7-2-84, 7-7-99, 6-10-00 Arth.; Iowa City 5-0-89 Prouty; Fayette 6-13-08 Wilson; West Okoboji Lake 7-5-12 Arth.

96. *DICAEOMA ANOMALUM* (Rostr.) Arth. & Fr.

*On *Hordeum vulgare* L.: Cedar Falls 7-7-96 Carver.

97. *DICAEOMA OBTECTUM* (Peck) Kuntze.

On *Scirpus validus* Vahl: A. (48) 9-2-78 Bessey, 7-0-87 (E. & E. N. Am. Fungi *2235*) Halsted, 7-14-96 Carver; C.C. (48) 9-27-82 Arth.; D. (48) 9-23-82, 9-21-84 Holw.; S.L. 8-2-98 Arth.

98. *DICAEOMA ANGUSTATUM* (Peck) Kuntze.

On *Scirpus atrovirens* Muhl.: C.C. (23) 9-14-82 Arth.; D. (23) 10-0-82, 9-8-85 (Barth. N. Am. Ured. *817*), 10-0-87 Holw.; S.L. (23) 1-8-84, 11-19-07 Arth.; Fayette 10-3-09 Wilson.

On *Scirpus cyperinus* (L.) Kunth: A. 1892 Carver; S.L. 11-19-07 Arth.

99. *DICAEOMA ERIOPHORI* (Thum.) Kuntze.

On *Eriophorum viridicarinatum* (Engelm.) Fernald: D. (23) 6-29-84 Holw.

On *Senecio aureus* L.: D. (92) 6-0-83 (Ellis, N. Am. Fungi *1425*) Holw.

100. *DICAEOMA CANALICULATUM* (Schw.) Kuntze.

On *Cyperus strigosus* L.: A. (23) 7-8-? Hitchcock, 8-20-92 Carver; Iowa City 8-23-06 Kern.

On *Xanthium* sp.: Johnson County 5-28-94 Macbride.

101. *DICAEOMA CYPERI* (Arth.) Kuntze.

On *Cyperus Schweinitzii* Torr.: D. 8-29-86 (Barth. N. Am. Ured. *837*, *838*), 11-25-86, 7-1-95 (Sydow, Ured. *1017*), 9-1-95 (Sydow, Ured. *1016*), 7-19-03 Holw.; Fayette 9-0-07 Wilson.

102. *DICAEOMA ELEOCHARIDIS* (Arth.) Kuntze.

On *Eleocharis intermedia* (Muhl.) Schultes: D. 8-15-86 (Barth. N. Am. Ured. *938*) Holw.; S.L. (34) 12-12-83, 4-10-02 Arth.

On *Eleocharis palustris* (L.) R. & S.: A. (34) 10-4-78 Bessey; S.L. 8-10-98 Arth.

On *Eupatorium maculatum* L.: D. 7-4-85 (Barth. N. Am. Ured. *1045*) Holw.; S.L. (128, not E. purpureum) 7-2-84 Arth.

On *Eupatorium perfoliatum* L.: D. (128) 6-0-83 Holw.

On *Eupatorium purpureum* L.: Fayette 7-2-09 Wilson.

103. *DICAEOMA GROSSULARIAE* (Schum.) Kern.

On *Carex blanda* Dewey: D. 6-2-02 Holw.

On *Carex pubescens* Muhl.: D. 9-28-84 (Barth. N. Am. Ured. *1079*), 8-7-98, 11-15-02, 4-0-03 Holw.; Iowa City 7-31-05 Kern.

On *Carex sparganioides* Muhl.: Avoca 9-6-21 (Barth. N. Am. Ured. *2659*) Bartholomew.

On *Carex stipata* Muhl.: D. 1901 Holw.

On *Carex substriata* (Kukenth.) MacKenzie: D. 9-5-86 (Barth. N. Am. Ured. *1048*) Holw.; S.L. 7-7-99 Arth.

On *Grossularia Cynosbati* (L.) Mill.: Manchester (102) 5-30-80 Hoyt; D. 7-4-99 (Barth. N. Am. Ured. *1025*), 8-13-03 Holw.; Iowa City 5-0-84 MacBride; Fayette 5-23-08 Wilson.

On *Grossularia missouriensis* (Nutt) Coy. & Britt.: A. (102) 5-3-77 Arth., 15-17-80 Bessey, date ? Hitchcock; D. (102) 5-0-80, 5-0-86 (Barth. N. Am. Ured. *1047*), 7-4-99, 6-9-01 (Barth. N. Am. Ured. *1152*) Holw.; S.L. 6-11-00, 6-15-01 Arth.; Clinton County 4-22-78, 4-23-78 Butler; Fayette 5-23-08 Wilson; Lake Okoboji 1910 Uhde.

On *Grossularia reclinata* (L.) Mill.: Johnson County 5-11-94 Macbride.

On *Ribes americanum* Mill.: A. (102) 5-30-81 Bessey; C.C. 6-8-72, 6-2-82 Arth.; D. 6-2-01 Holw.; Fayette 5-23-08 Wilson.

104. *DICAEOMA URTICAE* (Schum.) Kuntze.

On *Carex atherodes* Spreng.: S.L. 7-7-99, 4-12-03 Arth.

On *Carex Emoryi* Dewey: D. 9-23-82, 10-5-82, 9-5-86 (Barth. N. Am. Ured. *1081*), 10-0-90 (Sydow, Ured. *464*) Holw.

On *Carex lacustris* Willd.: D. 9-5-86 (Barth. N. Am. Ured. *1082*) Holw.; Freeport 10-13-01 Holw.

On *Carex stricta* Lam.: Avoca 9-6-21 (Barth. N. Am. Ured. *2777*) Bartholomew.

On *Urtica gracilis* Ait.: D. (130) date ? (Ellis, N. Am. Fungi *267*) Holw.; S.L. 6-10-00, 5-8-03 Arth.; Fayette 5-31-09 Wilson.

105. *DICAEOMA PHRYMAE* (Halsted) Arth. & Kern.

On *Carex Sprengelii* Dewey: Fayette 4-13-10 Wilson.

On *Phryma Leptostachya* L.: S.L. 7-0-86 Halsted; Fayette 7-14-09 Wilson.

106. *DICAEOMA ASTERUM* (Schw.) Arth. & Kern.

On *Aster cordifolius* L.: A. (87) 1875-8 Bessey: S.L. 6-11-00 Arth.; Iowa City 1889 Fitzpatrick; Fayette 6-5-08 Wilson.

On *Aster Drummondii* Lindl.: D. 6-2-01 (Barth. Fungi Columb. *4053*, Barth. N. Am. Ured. *534*) Holw.

On *Aster paniculatus* Lam.: S.L. 6-15-00 Arth.

On *Aster sagittifolius* Willd.: D. 6-9-01, 9-15-01 Holw.

On *Boltonia asteroides* (L.) L'Her.; S.L. 6-15-00, 6-22-00, 6-18-01 Arth.

On *Carex brevior* (Dewey) MacKenzie: S.L. 6-27-00 Arth.

On *Carex cephalophora* Muhl.: Fayette 7-30-09 Wilson.

On *Carex foenea* Willd.: D. 12-30-00, 1901, 10-20-01 (Barth. N. Am. Ured. *536*) Holw.

On *Carex normalis* MacKenzie: D. 10-20-01 Holw.

On *Carex pennsylvanica* Lam.: D. 9-5-86 (Barth. N. Am. Ured. *1032*), 8-7-87 (Barth. N. Am. Ured. *1031*) Holw.

On *Carex praegracilis* W. Boott: S.L. (27, not C. adusta) 12-12-83 Arth.

On *Carex sparganioides* Muhl.: D. 9-15-01, 4-0-03 Holw.

On *Carex stipata* Muhl.: Freeport 6-9-01, 10-13-01 Holw.

On *Carex vulpinoidea* Michx.: S.L. 6-22-00, 6-26-00 Arth.

On *Carex* sp.: A. 8-3-96 Carver; D. 9-0-86, 11-9-02, 11-16-02 Holw.; S.L. (27, not C. straminea) 3-5-84 Arth.; Freeport 10-6-01 Holw.

On *Erigeron annuus* (L.) Pers.: D. 6-15-85 (Barth. N. Am. Ured. *828*) Holw.; Fayette 7-12-09 Wilson.

On *Erigeron philadelphicus* L.: A. (97) 6-16-77 Arth.; S.L. 6-19-00 Arth.

On *Erigeron ramosus* (Walt.) B.S.P.: D. (97) 6-0-79 Holw.

On *Leptilon canadense* (L.) Britton: S.L. 6-19-00 Arth.; Jewell Junction 6-30-86 Hitchcock; Fayette 7-16-09 Wilson.

On *Polymnia canadensis* L.: Fayette 5-23-08 Wilson.

On *Solidago altissima* L.: S.L. 6-19-00 Arth.

On *Solidago flexicaulis* L.: A. (92) 5-16-? Hitchcock; D. 6-9-85 Holw.; Fayette 7-30-09 Wilson.

On *Solidago glaberrima* Martens: Johnson County 5-12-94 Macbride; Fayette 6-1-09 Wilson.

On *Solidago rigida* L.: D. (92) 5-0-79 Holw.

On *Solidago serotina* Ait.: S.L. 6-19-00 Arth.

On *Solidago ulmifolia* Muhl.: S.L. 7-7-99 Arth.; Fayette 6-11-08 Wilson.

107. *DICAEOMA PECKII* (De-Toni) Arth.

On *Carex trichocarpa* Muhl.: D. 6-2-01 Holw.

On *Meriolix serrulata* (Nutt.) Walp.: A. (113) 5-24-79 Thomas.

On *Oenothera biennis* L.: A. 5-29-71, 6-4-12 Arth., 5-26-99 Hume; D. (113) 6-0-79 (Ellis, N. Am. Fungi *1016*), 6-1-85 (Barth. N. Am. Ured. *53*) Holw.; S.L. 6-11-00 Arth.; Fayette 5-23-08 Wilson; West Okoboji Lake 7-1-12 Arth.

108. *DICAEOMA HIERACIATUM* (Schw.) Arth. & Kern.

On *Adopogon virginicus* (L.) Kuntze: D. 6-1-85 Holw.

On *Carex grisea* Wahl.: Sibley 8-26-98 Arth.

On *Carex siccata* Dewey: D. 8-28-87 (Barth. N. Am. Ured. *1066*), 9-4-87 Holw.

On *Lactuca canadensis* L.: A. 5-27-81 Bessey; Fayette 6-4-09 Wilson.

On *Lactuca ludoviciana* (Nutt.) DC.: S.L. 6-11-00 Arth.

On *Lactuca pulchella* (Pursh) DC.: D. 5-22-79 Holw.; Fayette 5-25-08 Wilson.

109. *DICAEOMA OBSCURUM* (Schroet.) Kuntze.

On *Juncoides intermedium* (Thuill.) Rydb.: Esterville (47) 6-8-82 Cratty.

110. *DICAEOMA ATROPUNCTUM* (P. & C.) Kuntze.

On *Anticlea chlorantha* (Richards.) Rydb.: D. (67) 7-11-84. (Ellis, N. Am. Fungi *1447*), 7-20-85 Holw.; Emmet County 7-11-86 Cratty.

111. *DICAEOMA ASPARAGI* (DC.) Kuntze.

On *Asparagus officinalis* L.: D. 3-11-02 (Barth. N. Am. Ured. *1527*), 7-6-02 Holw.; S.L. 11-2-02 Arth.; Fayette 8-20-09 Wilson; Waverly 8-21-09 Kern; Clermont 8-15-15 Learn.

112. *DICAEOMA (?) IRIDIS* (DC.) Kuntze.

On *Iris versicolor* L.: D. (82) 8-0-79, 9-0-79 (Thüm. Myc. Univ. *2042*), 9-21-84 (Barth. N. Am. Ured. *1160*) Holw.

113. *DICAEOMA (?) CYPRIPEDII* (Arth. & Holw.) Arth.

On *Cypripedium parviflorum* Salisb.: D. (32) 7-1-82 (Ellis, N. Am. Fungi *1473*), 9-22-85 (Barth. N. Am. Ured. *33*) Holw.

114. *DICAEOMA POLYGONI-AMPHIBII* (Pers.) Arth.

On *Bilderdykia Convolvulus* (L.) Dumort.: D. 8-24-99 Holw.

On *Geranium maculatum* L.: A. (101) 5-30-81 Bessey; D. (101) 6-0-79 Holw.; Fayette 5-23-08, 6-1-09 Wilson.

On *Persicaria Hartwrightii* (A. Gray) Greene: A. (52) 9-15-78 Thomas; C.C. (52) 9-20-82 Arth.; S.L. (52) 9-0-83 Arth.; D. 9-28-85 Holw.; Ontario 6-20-86 Carver; Forest City 7-8-99 Shimek; West Okoboji Lake 7-1-12 Arth.

On *Persicaria Muhlenbergii* (Meissn.) Small: A. (52) 10-22-82 Arth.; C.C. (52) 9-12-82 Arth.; D. 9-28-85 (Barth. N. Am. Ured. *1070*) Holw.; S.L. (52) 1-5-84, 5-0-04 Arth.; Iowa City 10-13-93 Shimek; Fayette 10-3-09 Wilson; Bedford 8-20-19 (Barth. N. Am. Ured. *2260*) Bartholomew.

115. *DICAEOMA CALTHAE* (Grev.) Kuntze.

On *Caltha palustris* L.: D. (26) 7-27-79, 8-6-85 (Barth. N. Am. Ured. *823*) Holw.; S.L. (26) 7-31-83 Arth.

116. *DICAEOMA CALTHAECOLA* (Schroet.) Arth.

On *Caltha palustris* L.: D. 7-0-02 (Barth. N. Am. Ured. *1533*) Holw.

117. *DICAEOMA NOLITANGERIS* (Corda) Arth.

On *Adoxa Moschatellina* L.: C.C. (86) 5-22-82 Arth.; D. (86) date ? (Ellis, N. Am. Fungi *220*), 5-0-83 (Rab.-Wint. Fungi Eur. *2914*), 6-1-85 (Barth. N. Am. Ured. *17*) Holw., 4-15-10 Wilson.

On *Impatiens pallida* Nutt.: C.C. (46) C.C. 9-21-82 Arth.; D. (46) date ? (Ellis, N. Am. Fungi *251*), 6-10-83, 9-5-85, 8-14-92 (Sydow, Ured. *760*) Holw.; Clermont 8-12-15 Learn.

118. *DICAEOMA VIOLAE* (Schum.) Kuntze.

On *Viola eriocarpa* Schw.: (131) 6-3-82, 5-0-86 (Barth. N. Am. Ured. *974*), 5-22-87 Holw.; Fayette 5-15-08 Wilson.

On *Viola papilionacea* Pursh: D. (65) 8-3-82, 9-3-85 (Barth. N. Am. Ured. *975*) Holw.

On *Viola pubescens* Ait.: D. (65, 131) 6-0-82 (Ellis, N. Am. Fungi *1007*), 9-30-83 Holw.

On *Viola sororia* Willd.: Fayette 5-18-08 Wilson.

119. *DICAEOMA PIMPINELLAE* (Strauss) Kuntze.

On *Osmorrihiza Claytoni* (Michx.) Clarke: D. (50) 7-27-84, 6-20-86 (Barth. N. Am. Ured. *650*) Holw.; Fayette 5-15-08, 5-30-08, 6-9-08, 6-19-09 Wilson.

On *Osmorrhiza longistylis* (Torr.) DC.: D. (50, 118) 6-8-82, 6-0-83, 6-0-85 (Barth. N. Am. Ured. *756*) Holw.; Fayette 6-3-09 Wilson.

120. *DICAEOMA MARYLANDICUM* (Lindr.) Arth.

On *Sanicula* sp.: D. 9-3-86, 6-6-93 (Barth. N. Am. Ured. *765*) Holw.

121. *DICAEOMA GENTIANAE* (Strauss) Kuntze.

On *Dasystephana puberula* (Michx.) Small: A. (39) 1876 Bessey; D. (39) 9-18-84 Holw.

122. *DICAEOMA CONVOLVULI* (Pers.) Kuntze.

On *Convolvulus sepium* L.: A. (29) 6-15-76 Bessey, 10-22-82 Arth.; D. (29) 9-0-79, 10-5-02 (Barth. N. Am. Ured. *1037*) Holw.; S.L. 10-28-89 Arth.; Emmet County 8-31-86 Cratty; Fayette 6-26-09, 7-14-09 Wilson; Clermont 8-20-09 Wilson.

123. *DICAEOMA MENTHAE* (Pers.) S. F. Gray.

On *Blephila hirsuta* (Pursh) Torr.: D. 9-28-85, 6-20-86 (Barth. N. Am. Ured. *353*), 8-22-86 (Sydow, Ured. *275*) Holw.

On *Koellia pilosa* (Nutt.) Britton: Fayette 8-3-09 Wilson.

On *Koellia virginiana* (L.) MacM.: A. (45) 10-15-77 Bessey; C.C. (45) 9-12-82 (Barth. N. Am. Ured. *1062*) Arth.; D. (45) 9-20-82 Holw.; S.L. (45) 7-31-83 Arth.; Emmet County 8-16-86 Cratty.

On *Mentha canadensis* L.: A. (45) 10-15-77 Bessey; D. (45) 11-5-82, 9-21-84 Holw.; S.L. 10-20-94, 11-1-94, Arth.; Hesper 9-20-85 (Barth. N. Am. Ured. *950*) Holw.; Fayette 7-19-09 Wilson.

On *Monarda fistulosa* L.: A. (45) 10-15-77 Bessey, 9-8-97 Carver; C.C. (45) 8-22-82 Arth.; D. (45, 111) 9-0-78, 6-15-79, 6-4-83, 9-28-84, 8-18-87 (Barth. N. Am. Ured. *853*) Holw.; S.L. (45) 8-4-83 Arth.; Iowa City 10-12-93 Bloom; Waverly 8-27-06 Kern; Fayette 6-26-09, 7-14-09 Wilson.

124. *DICAEOMA CAULICOLA* (Tracy & Gall.) Kuntze.

On *Salvia lanceifolia* Poir.: Indianola 9-24-95 Carver.

125. *DICAEOMA ANTIRRHINI* (Diet. & Holw.) Kuntze.

On *Antirrhinum majus* L.: Iowa City 6-29-21 Farr.

126. *DICAEOMA PUNCTATUM* (Link) Arth.

On *Galium concinnum* T. & G.: A. (38) 10-19-77 Bessey; D. (38, 100) 10-0-78, 6-0-83, 9-27-91, (Barth. N. Am. Ured. *862*) Holw.; Fayette 8-3-09 Wilson.

On *Galium asprellum* Michx.: Hesper 9-20-85 (Barth. N. Am. Ured. *962*) Holw.

127. *DICAEOMA TROGLODYTES* (Lindr.) Jackson.

On *Galium triflorum* Michx.: D. (38, not G. Aparine) 7-13-84, 8-15-86 (Barth. N. Am. Ured. *1376*) Holw.

128. *DICAEOMA HELIANTHI-MOLLIS* (Schw.) Arth.

On *Helianthus annuus* L.: D. 9-12-86 Holw., S.L. 9-26-91 Arth.; Iowa City 9-25-07 Kern; Fayette 8-30-09 Wilson.

On *Helianthus decapetalus* L.: Fayette 8-30-09 Wilson.

On *Helianthus doronicoides* Lam.: A. 10-13-77 Bessey; C.C. 9-12-82 Arth.; D. 9-13-85, 9-14-85 (Barth. N. Am. Ured. *947*), 8-22-88 (Sydow, Ured. *269*) Holw.; Fayette 7-10-09 Wilson.

On *Helianthus grosse-serratus* Martens: A. (61) 9-14-76 Bessey; D. 1878 Holw.; S.L. 10-28-89 Arth.; Emmet County 8-3-86 Cratty; Fayette 9-10-09 Wilson.

On *Helianthus laetiflorus* Pers.: D. 9-12-85, 9-12-86 (Sydow, Ured. *270*) Holw.

On *Helianthus Maximiliani* Schrad.: S.L. (61) 9-0-83 Arth.; Emmet County 8-1-86, 9-0-81 Cratty.

On *Helianthus occidentalis* Riddell: D. (61) 9-26-84, 9-15-85 (Barth. N. Am. Ured. *1052*), 6-0-88, 9-15-89 Holw.

On *Helianthus scaberrimus* Ell.: A. (61) 9-6-77 Bessey; D. 8-27-88 (Barth. N. Am. Ured. *1054*) Holw.; S.L. (61) 9-0-83 Arth.; Emmet County 9-0-81, 8-1-86, Cratty.

On *Helianthus strumosus* L.: A. (92) 5-16-? Hitchcock; C.C. (61) 9-12-82 Arth.; D. (61) 6-16-79, 8-15-86 (Barth. N. Am. Ured. *847*) Holw.; Johnson County 5-22-94 MacBride; Fayette 6-4-09 Wilson.

On *Helianthus tracheliifolius* Mill.: Fayette 6-4-09 Wilson.

On *Helianthus tuberosus* L.: A. (61) 1910 King; Clermont 9-12-10 Learn.

129. *DICAEOMA CNICI* (H. Mart.) Arth.

On *Cirsium lanceolatum* (L.) Hill: A. 6-0-96 Carver.

130. *PUCCINIOLA ARGOPHYLLAE* (Seym.) Arth.

On *Psoralidium argophyllum* (Pursh) Rydb.: D. (122) 6-15-84, 6-0-86 (Barth. N. Am. Ured. *994*), 7-0-86 Holw.; West Okoboji Lake 7-1-12 Arth.

131. *PUCCINIOLA POROSA* (Peck) Arth.

On *Vicia americana* Muhl.: A. (122) 5-27-81 Bessey, 5-13-86, 6-26-? Hitchcock, 6-11-96 Carver; D. (122) 6-8-82, 6-22-84, 6-0-85 (Barth. N.

Am. Ured. *981*) Holw.; Correctionville 8-2-07 Vasku; Fayette 6-9-08 Wilson.

On *Vicia sparsifolia* Nutt.: Armstrong 5-22-86 Cratty.

132. *ALLODUS CLAYTONIATA* (Schw.) Arth.

On *Claytonia virginica* L.: D. 5-31-85 (Barth. N. Am. Ured. *29*), 5-5-89 (Barth. N. Am. Ured. *538*), 5-12-89 (Sydow, Ured. *323*) Holw.; Fayette 5-1-08, 6-3-09 Wilson.

133. *ALLODUS PODOPHYLLI* (Schw.) Arth.

On *Podophyllum peltatum* L.: A. (51, 119) 6-30-76, 5-10-78 Bessey, 5-28-99 Hume; D. (51, 119) 7-0-79, 5-30-81, 6-1-85 (Barth. N. Am. Ured. *256*), 6-27-85 (Barth. N. Am. Ured. *959*), 7-1-88 (Sydow, Ured. *76*) Holw.; Fayette 6-1-09, 7-12-09 Wilson..

134. *ALLODUS JUSSIAEAE* (Speg.) Arth. & Orton.

On *Ludwigia polycarpa* Short & Peter: Iowa City date ? Hitchcock, 8-23-06 Kern.

135. *ALLODUS MICROICA* (Ellis) Orton.

On *Deringa canadensis* (L.) Kuntze: D. 6-0-86 Holw.

136. *ALLODUS GILIAE* (Peck) Orton.

On *Phlox divaricata* L.: A. (117) 5-24-79 Thomas; D. (117) 6-8-82, 6-0-83 (Ellis, N. Am. *1432*), 10-4-85, 5-12-86 (Barth. N. Am. Ured. *162*) Holw.; Iowa City 6-0-88 MacBride.

On *Phlox pilosa* L.: A. (117) 5-30-81 Bessey.

137. *ALLODUS AMBIGUA* (A. & S.) Arth.

On *Galium Aparine* L.: D. 6-9-01, 6-22-02, 8-15-86 Holw.

138. *ALLODUS TENUIS* (Schw.) Arth.

On *Eupatorium urticaefolium* Reichenb.: D. 9-15-95 (Barth. N. Am. Ured. *65*) Holw.

139. *ALLODUS BATESIANA* Arth.

On *Heliopsis scabra* Dunal: A. 7-0-87 Hitchcock.

140. *BULLARIA TUMIDIPES* (Peck) Arth.

On *Lycium halimifolium* Mill.: Council Bluffs 9-5-21 (Barth. N. Am. Ured. *2566*) Bartholomew.

141. *BULLARIA VERNONIAE* (Schw.) Arth.

On *Vernonia Baldwinii* Torr.: Creston (61, not on V. noveboracensis) 1882 Andrews; Avoca 9-6-21 (Barth. N. Am. Ured. *2571*) Bartholomew.

On *Vernonia fasciculata* Michx.: D. (61) 9-0-80, 9-21-84 (Barth. N. Am. Ured. *874*), 8-6-87 (Barth. N. Am. Ured. *973*), 8-16-87 Holw.; Emmet County 8-16-86 Cratty; Avoca 9-6-21 (Barth. N. Am. Ured. *2780*) Bartholomew.

142. *BULLARIA KUHNIAE* (Schw.) Kern.

On *Kuhnia eupatorioides* L.: D. 9-3-83, 9-16-88 (Sydow, Ured. *63*, Barth. Fungi Columb. *4268*), 8-14-98 (Barth. N. Am. Ured. *644*) Holw.; Fayette 8-3-09 Wilson.

143. *BULLARIA ABSINTHII* (Hedw. f.) Arth.

On *Artemisia dracunculoides* Pursh: A. 9-0-87 (E. & E. N. Am. Fungi *2250*) Halsted; S.L. 3-24-08 Arth.

On *Artemisia gnaphalodes* Nutt.: C.C. (61, not on A. ludoviciana) 9-16-82 Arth.

On *Artemisia serrata* Nutt.: C.C. (61, not on A. ludoviciana) 9-12-82

Arth.; D. (61), (not on A. ludoviciana) 9-12-79, 1880, 8-15-85 (Barth. N. Am. Ured. *1020*), 9-15-85 (Barth. N. Am. Ured. *1021*) Holw.

144. *BULLARIA CIRSII* (Lasch) Arth.

On *Cirsium altissimum* (L.) Spreng.: D. 10-1-85 (Barth. N. Am. Ured. *935*), 5-30-03, 7-12-08 Holw.

On *Cirsium discolor* (Muhl.) Spreng.: D. (36) 10-8-78, 8-2-86 (Barth. N. Am. Ured. *934*) Holw.

145. *BULLARIA HIERACII* (Schum.) Arth.

On *Hieracium canadense* Michx.: D. 8-10-84, 9-23-88 (Barth. N. Am. Ured. *850*) Holw.

On *Leontodon Taraxacum* L.: A. (36) 8-0-82 Arth., 6-30-96 Carver; C.C. (36) 9-23-82, 9-30-82 Arth.; D. (36) 9-3-85 Holw.; S.L. 6-19-00 Arth.; Turin 9-8-94 Pammel; Fayette 7-8-09 Wilson; West Okoboji 1910 Uhde; Iowa City 8-8-12 Thomas.

On *Nothocalais cuspidata* (Pursh) Greene: D. (36) 6-15-81, 6-11-83 Holw.

146. *TELEUTOSPORA RUDBECKIAE* (Arth. & Holw.) Arth. & Bisby.

On *Rudbeckia laciniata* L.: D. (17) 9-23-83, 7-0-84 (Ellis, N. Am. Fungi *1439*), 9-21-84 (Arth. & Holw. Ured. Exsicc. *1*), 9-3-85 (Sydow, Ured. *1305*, Rab.-Wint. Fungi Eur. *3412*) Holw.; Fayette 8-3-09 Wilson.

147. *MICROPUCCINIA ANEMONES-VIRGINIANAE* (Schw.) Arth.

On *Anemone cylindrica* A. Gray: A. (22) 6-21-81 Bessey, 7-2-96 Carver; D. 1885 (Arth. & Holw. Ured. Exsicc. *12a*), 10-5-02 Holw.

On *Anemone virginiana* L.: A. 7-0-91 Pammel & Rolfs; C.C. (22) 9-30-82 Arth.; D. (22) 7-7-84 Holw.; Fayette 6-5-08 Wilson.

148. *MICROPUCCINIA PULSATILLAE* (Kalchbr.) Arth. & Jackson.

On *Pulsatilla hirsutissima* (Pursh) Britton: D. 6-0-80, 6-0-84 (Ellis, N. Am. Fungi *1456*), 6-26-86 (Arth. & Holw. Ured. Exsicc. *12b*) Holw.

149. *MICROPUCCINIA HEUHERAE* (Schw.) Arth. & Jackson.

On *Mitella diphylla* L.: D. (59) 7-0-84 (Ellis, N. Am. Fungi *1464*), 10-1-85 (Arth. & Holw. Ured. Exsicc. *6a*) Holw.

150. *MICROPUCCINIA CIRCAEAE* (Pers.) Arth. & Jackson.

On *Circaea lutetiana* L.: D. (28) 7-0-79, 9-3-85 (Arth. & Holw. Ured. Exsicc. *2a*), 7-28-95 (Sydow, Ured. *1015*) Holw.; Sopers Mills 8-24-99 Hume; Clermont 8-14-14 Learn; Fayette 7-10-09 Wilson.

151. *MICROPUCCINIA CRYPTOTAENIAE* (Peck) Arth. & Jackson.

On *Deringa canadensis* (L.) Kuntze: D. (31) 9-30-83, 10-11-84, 7-12-03 (Sydow, Ured. *2020*) Holw.

152. *MICROPUCCINIA DAYI* (G. W. Clint.) Arth. & Jackson.

On *Steironema ciliatum* (L.) Raf.: D. (33) 7-19-84 (Rab.-Wint. Fungi Eur. *3206*; Ellis, N. Am. Fungi *1453*), 8-15-84, 7-27-85 (Arth. & Holw. Ured. Exsicc. *8*) Holw.

153. *MICROPUCCINIA HYDROPHYLLI* (P. & C.) Arth. & Jackson.

On *Hydrophyllum virginianum* L.: D. (42) 5-0-82 date ? (Ellis, N. Am. Fungi *1043*), 5-10-86 (Barth. N. Am. Ured. *346*), 5-29-89 (Sydow, Ured. *472*), 6-0-93 (Carlton, Ured. Am. *16*) Holw.; Fayette 5-19-09 Wilson.

154. *MICROPUCCINIA HYSSOPI* (Schw.) Arth. & Jackson.

On *Agastache nepetoides* (L.) Kuntze: D. (43) 7-21-84, 7-31-99 Holw.

155. *MICROPUCCINIA PHYSALIDIS* (Peck) Arth. & Holw.

On *Physalis lanceolata* Michx.: D. 6-14-03 Holw.

156. *MICROPUCCINIA VERONICARUM* (DC.) Arth. & Jackson.
On *Leptandra virginica* (L.) Nutt.: A. 9-21-78 Bessey; D. 8-15-86 (Arth. & Holw. Ured. Exsicc. *9a*) 8-1-92 (Arth. & Holw. Ured. Exsicc. *9b*) Holw.; Gerled 7-28-17 Dodge.

157. *MICROPUCCINIA RUBEFACIENS* (Johans.) Arth. & Jackson.
On *Galium boreale* L.: D. (38) date ? (Ellis, N. Am. Fungi *1038a*), 6-30-86 (Barth. N. Am. Ured. *965*) Holw.

158. *MICROPUCCINIA LOBELIAE* (W. Gerard) Arth. & Jackson.
On *Lobelia syphilitica* L.: A. (44) date ? (Ellis, N. Am. Fungi *253*) Bessey; D. 1884, 9-20-85 (Arth. & Holw. Ured. Exsicc. *3*), 8-14-92 (Sydow, Ured. *774*) Holw.

159. *MICROPUCCINIA XANTHII* (Schw.) Arth. & Jackson.
On *Ambrosia trifida* L.: D. 7-24-95 (Barth. N. Am. Ured. *1577*), 7-25-95 (Sydow, Ured. *1039*), 9-13-96 Holw.; New Hartford 8-28-12 Kern.
On *Xanthium italicum* Mor.: S.L. 9-5-10, 9-29-11 Arth.; West Okoboji Lake 7-1-12 Arth.; Reinbeck 8-26-12 Kern.
On *Xanthium* sp.: A. (66) 9-2-93 Stewart; D. (66) 8-15-89 (Arth. & Holw. Ured. Exsicc. *10c*), 8-18-89 (Sydow, Ured. *487*) Holw.; S.L. (66) 7-24-83, 8-29-14 Arth.; Iowa City 10-3-93 Bloom, 8-23-06 Kern, 7-16-14 Thomas; Clermont 8-20-09 Wilson; Waterloo 8-23-19 (Barth. N. Am. Ured. *2277*) Bartholomew.

160. *MICROPUCCINIA ASTERIS* (Duby) Arth. & Jackson.
On *Aster azureus* Lindl.: A. (24) 1877 Bessey.
On *Aster cordifolius* L.: Fayette 7-16-09 Wilson.
On *Aster lateriflorus* (L.) Britton: A. 9-22-78 Thomas; Iowa City 8-14-06, 8-23-06 Kern.
On *Aster Novæ-Angliae* L.: D. (24) 9-19-84 Holw.
On *Aster paniculatus* Lam.: D. 9-15-95 Holw.; S.L. 6-19-00 Arth.; Fayette 6-29-09 Wilson.
On *Aster puniceus* L.: D. 9-15-95 (Barth. N. Am. Ured. *1332*) Holw.

161. *MICROPUCCINIA GRINDELIAE* (Peck) Arth. & Jackson.
On *Solidago nemoralis* Ait.: D. 6-6-93 (Barth. N. Am. Ured. *1077*) Holw.

162. *MICROPUCCINIA SILPHII* (Schw.) Arth. & Jackson.
On *Silphium laciniatum* L.: D. 7-0-90 (Arth. & Holw. Ured. Exsicc. *4a*), 8-0-90 (Sydow, Ured. *482*) Holw.; S.L. 8-6-98 Arth.; Milford 7-31-02 Arth.
On *Silphium perfoliatum* L.: A. (56) 7-30-96 Carver; D. (56) 8-0-82 (Ellis, N. Am. Fungi *1033*), 9-21-84 (Arth. & Holw. Ured. Exsicc. *4b*), 8-15-86 (Arth. & Holw. Ured. Exsicc. *4c*) Holw.; S.L. 8-9-07 Arth.; Fayette 5-21-09 Wilson.

Imperfectly Known Species

163. *AECIDIUM ONOBRYCHIDIS* Burr.
On *Falcata comosa* (L.) Kuntze: D. (110) date ? (Ellis, N. Am. Fungi *1436*), 6-21-81 Holw.
On *Glycine Apios* L.: A. (110) 6-11-79 Thomas.

164. *AECIDIUM XANTHOXYLI* Peck.
On *Xanthoxylum americanum* Mill.: D. (132) 6-5-81, date ? (Ellis, N. Am. Fungi *1013*), 6-0-83 (Rab.-Wint. Fungi Eur. *2928*), 6-0-85 (Barth. N. Am. Ured. *102*) Holw.; Fayette 7-30-09 Wilson.

165. *AECIDIUM POLYGALINUM* Peck.
On *Polygala Senega* L.: D. (121) 6-11-82 (Ellis, N. Am. Fungi *1009*), 6-0-83 (Rab.-Wint. Fungi Eur. *3319*), 5-18-99 (Sydow, Ured. *1396*) Holw.

166. *AECIDIUM TITHYMALI* Arth.
On *Tithymalus commutatus* (Engelm.) Kl. & Garcke.: D. (95) 6-0-83, 6-2-85 (Barth. N. Am. Ured. *703*), 6-20-85 Holw.

167. *AECIDIUM HYDNOIDEUM* Berk. & Curt.
On *Dirca palustris* L.: D. (104) 6-6-80, 1881, 5-0-85 (E. & E. N. Am. Fungi *1816*), 7-0-85 Holw.; Fayette 6-11-08 Wilson.

168. *AECIDIUM CAMPANULASTRI* Wilson.
On *Campanula americana* L.: Fayette 6-25-09 Wilson.

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